

## **REMARKS/ARGUMENTS**

The applicant has concurrently filed a request for a one-month extension of time. Accordingly, the applicant respectfully submits that this Response is timely filed. Please charge our deposit account number 02-2095 in the amount of \$120.00, which comprises the extension of time fee. Please also charge any additional fees that may be required, or credit any overpayment, to our deposit account.

The Examiner is sincerely thanked for her assistance during the telephone interview of April 17, 2008.

### **Claim Status**

By this response, claims 31 and 51 have been amended. Claim 41 was previously amended. Claims 48 and 49 were previously presented. Claims 32, 33, 35, 36, 38-40, 42-44 are in their original state. Claims 53-56 are new. Claims 1-30, 37, 45, 47, 50, and 52 have been cancelled. Claims 34 and 46 are withdrawn.

### **Claim Rejections 35 USC §112**

In the Office Action, the Examiner stated that claim 52 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. By this response, claim 52 has been cancelled. As such, Applicant respectfully submits that the rejection of claim 52 is overcome.

### **Claim Rejections 35 USC §103**

In the Office Action, the Examiner stated that claims 1-3, 5-10, 14-16, 31-33, 35, 36, 38, 43, 44, and 47-52 were rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson (3,136,668). The Examiner further stated that claims 11, 13, 39, and 40-42 were rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson in view of Clay (4,181,546). As noted hereinabove, claims 1-30, 37, 45, 47, 50, and 52 have presently been cancelled without prejudice.

## **1. Lack of Analogous Art**

The Examiner must determine what is analogous art for the purpose of analyzing obviousness. In order to rely on a reference, the reference must either be in the field of the Applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the invention was concerned. (MPEP 2141.01(a))

As noted by the Examiner in the Office Action, "Pearson discloses a propellant...". As stated in Simpson, propellants are "useful as fuels for rockets" (Col. 1, Lines 12-13).

In contrast, the method as claimed in claims 31-56 of the present application is directed to ANFO explosive compositions. As stated in the application as filed, ANFO explosive compositions are used, for example, for "blasting in open pits, underground mining, quarry and construction." (Paragraph 0002).

As would be known to one of skill in the art, propellants are ignited to produce a slow and controlled burn. In using propellants, energy is released slowly over time to provide thrust to continuously propel an object, such as a rocket. In contrast, ANFO explosives are detonated to produce an explosion. In using ANFO explosives, massive quantities of energy are released instantaneously to blast and break substances such as rock. As such, Applicant respectfully submits that when formulating an ANFO explosive, a person skilled in the art would not look to a teaching relating to propellants, as the composition of a propellant would not be suitable for use as an explosive. That is, a propellant would not instantaneously detonate to release enough energy to blast or break substances such as rock.

Further, the claims of the present application are directed to an ANFO explosive composition of reduced oil segregation. That is, the particular problem with which the present application is concerned is oil segregation in ANFO explosives. This problem exists in ANFO explosives because ANFO explosives essentially comprise a particulate substance (e.g. ammonium nitrate prills), coated with a liquid (e.g. fuel oil) that remains in a flowable state, possibly for days once manufactured, prior to detonation. Oil

segregation refers to the tendency of the liquid to flow and separate from the particulate substance. If excess segregation occurs, the ANFO composition may fail to explode or may deflagrate.

As stated throughout the disclosure of Simpson (see for example Column 1, line 11), the propellant described therein is a solid. As such, oil segregation would not be a concern for Simpson, as any oils therein are encased in a solid matrix, and are not free to flow and separate. Accordingly, Applicant respectfully submits that Simpson is not analogous art since Simpson is not pertinent to the particular problem with which this application is concerned.

As such, Applicant respectfully submits that claims 31-36, 38-44, 46, 48, 49, 51, and 53-56 are not obvious over Simpson, at least because Simpson is not analogous art. Accordingly, Applicant respectfully submits that claims 31-36, 38-44, 46, 48, 49, 51, and 53-56 are in condition for allowance.

## **2. Simpson Does Not Teach, Disclose, or Suggest all Elements of Claims 31**

Simpson describes a solid propellant composition. The composition of Simpson comprises an inorganic oxidizer dispersed in a cured reaction product of a mixture comprising a polyepoxide, an epoxy curing agent, and a bituminous material (Column 2, Lines 4-15). In order to make and use the composition of Simpson, the inorganic oxidizer, polyepoxide, epoxy curing agent, and bituminous material are combined, and then "cast into the desired propellant shape by pouring or otherwise suitable techniques" (Column 12, Lines 14-16). The composition is then "cured to convert the mixture to a **solid insoluble infusible product**" (Column 12, Lines 17-18, emphasis added). This **solid insoluble infusible product is ignited** in the combustion chamber of a rocket propulsion motor (Column 1, Lines 26-30).

In contrast, amended claim 31 specifies combining combining a liquid mixture with inorganic oxidizer particles to produce an ANFO explosive comprising flowable inorganic oxidizer particles coated with the liquid mixture. Claim 31 further specifies

that the flowable inorganic oxidizer particles coated with the liquid mixture are loaded into a borehole, and are maintained as a flowable composition until detonation.

Nowhere does Simpson teach, disclose, or suggest loading the composition disclosed therein into a borehole. As discussed hereinabove, Simpson discloses a propellant useful as a propellant for a rocket, and discloses loading the propellant in the combustion chamber of a rocket propulsion motor. There is no suggestion in Simpson that the propellant disclosed therein could be used for blasting in a borehole. Further, as outlined hereinabove, a person skilled in the art of explosives would have no motivation to use the propellant of Simpson in blasting a borehole, as the person skilled in the art would know that a propellant would not detonate to release enough energy to blast or break substances such as rock. As such Applicant respectfully submits that claim 31 is not obvious over Simpson for at least this reason.

Furthermore, nowhere does Simpson teach, disclose, or suggest maintaining the composition thereof in a flowable state until ignition. Rather, the stated objective of Simpson is to create a solid insoluble infusible product. This solid insoluble infusible product is ignited to propel a rocket.

Applicant respectfully submits that to arrive at the claims of the present invention, the teaching of Simpson would have to be modified to eliminate the casting and curing steps disclosed therein, and to proceed directly from the mixing step to storing the composition in a non-cast form until use. Applicant respectfully submits that such a modification is not taught or suggested by Simpson.

Applicant respectfully submits that a person skilled in the art, on reading Simpson, would have no motivation to modify Simpson in such a manner. Simpson does not provide any indication that the casting and curing step may be eliminated, or that the liquid mixture may be detonated as an explosive. In addition, there is no teaching that the mixed propellant composition, pre-curing, may be stored and then used as an explosive composition. In particular, Simpson teaches that the function of the epoxy

group is to be cured so as to create a solid cast material. Simpson provides no indication that the epoxy may function to reduce segregation in a flowable ANFO explosive comprising oxidizer particles coated with oil. There is no teaching that the pre-cured composition of Simpson may be stored for up to 14 days prior to being detonated as an explosive (claim 54). Further, there is no teaching that the pre-cured composition of Simpson could exhibit an oil separation of less than 1% (Claim 56). Therefore, a person skilled in the art of explosives would not consider using the pre-cured propellant composition of Simpson as an explosive composition wherein the pre-cured propellant composition would be stored for an extended period of time in a non-cast state and then detonated (as opposed to ignited).

Further, MPEP 2143.01 VI, provides that if the proposed modification of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the reference are not sufficient to render the claims *prima facie* obvious. Applicant respectfully submits that if a person skilled in the art was motivated to modify the composition of Simpson to eliminate the casting and curing steps and proceed from the mixing step to using the pre-cured material as an explosive and not a propellant, a solid insoluble infusible product would not be created and ignited. Rather, a liquid mixture would be created which, when ignited, would not function properly as a propellant. This is contrary to the stated goal of Simpson of creating a solid propellant, and would change the principle of operation of Simpson. Accordingly, Applicant respectfully submits that, for at least this reason, claim 31 is not obvious over Simpson, and is in condition for allowance.

Claims 32-36, 38-44, 46, 48, 49, 51, and 53-56 are dependent on claim 31, and the forgoing arguments apply equally thereto. As such, Applicant respectfully submits that these claims are in condition for allowance.

Summary

In view of the forgoing arguments, Applicant respectfully submits that the claims of the present application are in condition for allowance. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

BERESKIN & PARR

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